

# University of Hawaii: IACUC Policies & Guidelines

## **Policy 14 – Use of Streptozocin on Animal Subjects (5/11/06)**

14.1.0 Proprietary Name: Zanozar

14.2.0 Mechanism Of Action And General Application

Streptozocin is a synthetic antineoplastic agent that is chemically related to other nitrosoureas used in cancer chemotherapy. Streptozocin inhibits DNA synthesis in bacterial and mammalian cells. This type of antibiotic is used primarily to treat pancreatic islet cell cancer. Streptozocin is also used to treat carcinoid tumor, carcinoid syndrome, Hodgkin's disease, pancreatic adenocarcinoma, colorectal cancer, hepatoma, pheochromocytoma, epidermoid carcinoma of the lung, lymphocytic lymphoma, Burkitt's lymphoma, acute lymphocytic leukemia, malignant melanoma, and metastatic sarcoma.

14.3.0 Use Of Streptozocin In Animal Model Studies

Streptozocin is mutagenic. When administered parentally, it has been found to be tumorigenic or carcinogenic in some rodents.

In experiments with many animal species, streptozocin induced a diabetes that resembles human hyperglycemic nonketotic diabetes mellitus. The diabetes-like state has been studied extensively. It appears to be mediated through a lowering of beta cell nicotinamide adenine denucleo-tide (NAD) and consequent histopathologic alteration of pancreatic islet beta cells. In all species tested, the agent was found to concentrate in the liver and kidney.

14.4.0 PRECAUTIONS

Because of its known inherent renal toxicity properties, therapy with this drug is limited to patients with symptomatic or progressive metastatic disease. Streptozocin is irritating to tissues at the injection site. Extravasation may cause severe tissue lesions and necrosis.

#### 14.5.0 Animal Pain And Distress Category Assignment

Because of the known adverse side effects experienced by human and animal subjects alike when streptozocin is administered for therapy or as a test agent, the UH IACUC has determined that animal subjects which are assigned to treatments in which streptozocin is administered should be assigned to the Animal Pain and Distress Category E.

#### 14.6.0 Required Animal Use Protocol Information

If streptozocin is used in a study, this information is required to be provided by the applicant:

- A clear explanation why streptozocin is proposed for use in the study,
- Alternatives to the use of streptozocin has been investigated by at least conducting a journal article database search using an appropriate search strategy and key words (See USDA Policy 12, protocol form section V. for more details),
- Provide the streptozocin dosage, administration schedule, and sites of administration,
- Provide a schedule of the frequency of monitoring animal subjects following the administration of streptozocin,
- Provide a description of the anticipated adverse side effects or symptoms expected from the animal subjects which have been treated with streptozocin,
- Designation of key research staff personnel who will be responsible for monitoring the animal subjects,
- Provide end points which will be used to prevent undue distress to animal subjects experiencing the agent,
- Consultation with the UH Veterinarians office is mandatory in the design of the study, and,
- Studies using streptozocin will be forwarded to the UH Environmental Health and Safety Office for personnel risk and assessment and hazardous agent reviews.

*Effective May 11, 2006*

